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EXAMINER	
WILLOUGHBY, TERRENCE RONIQUE	
ART UNIT	PAPER NUMBER
2836	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/593,391	NAKAJIMA, YOMATSU	
	Examiner	Art Unit	
	TERRENCE R. WILLOUGHBY	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-10 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-10 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 9/192006 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/192006.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 11-12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 5 is objected to because of the following informalities: On page 3, claim 5, the phrase recites "The neutralization apparatus according to **4** claim 1 or 2. The Examiner believes the number "**4**" should be deleted.

Appropriate correction is required.

3. Claims 7-8 recites the limitation "**the ion sensors**" in ll. 2-3 of claim 7 and ll. 2-3 of claim 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claims 7-8, recites "the extension of the discharge needle of the plus electrode and the extension of the discharge needle of the minus electrode intersect with each." This limitation is indefinite because the extension of both the plus electrode and minus electrode is not structurally shown intersecting with each other in the drawing figures or disclosed in the specification. For the purpose of examination the Examiner will interpret the claims as wherein the extension of the discharge needle of the plus electrode and the extension of the discharge needle of the minus electrode intersect with each other through the gas flow of the gas injection ports.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Saurenman (US 4,498,116).

9. Regarding claim 1, Saurenman in (Fig. 1), discloses a DC voltage corona discharging neutralization apparatus comprising

A neutralization apparatus main body (12);

A plurality of plus electrodes (10a) which are provided in the neutralization apparatus main body (12) and to which plus voltage is applied to generate plus ions (col. 2, ll. 20-26 and ll. 50-55)),

A plurality of minus electrodes (20a) which are provided in the neutralization apparatus main body (12) and to which minus voltage is applied to generate minus ions (col. 2, ll. 25-41 and ll. 50-55), and

A plurality of gas injection ports (35, 36) which are formed in the neutralization apparatus main body (12) and from which gas flow for transferring ions is injected (col. 3, ll. 1-9 and ll. 12-18), wherein

The gas injection ports (35, 36) are provided between the plus electrodes (10a) and the minus electrodes (20a).

10. Regarding claim 5, Saurenman in (Figs. 1-3), discloses the neutralization apparatus according to any one of claims 1 or 2, wherein

The plus electrodes (10a) and the minus electrodes (20a) are respectively provided with discharge needles (col. 2, ll. 20-26 and ll. 35-41) which are inclined toward the gas injection ports (see numerals (35, 36) and col. 3, ll. 1-5)

The gas flow is injected from each of the gas injection ports (35, 36) in a direction substantially perpendicular to the subject to be neutralized (see, Fig. 2, (42) and Fig. 3, (40-41)), and an extension of the discharge needle of the plus electrode (10a) and an extension of the discharge needle of the minus electrode

(20a) intersect with each other on the gas flow (see, Fig. 2 (30, 37) and Fig. 3, (30, 31) which shows the gas flow of the positive electrodes (10a) and negative electrodes (20a) intersecting each other and perpendicular to the subject to be neutralized (see, Fig. 2, (42) and Fig. 3, (40-41)).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saurenman (US 4,498,116) in view of Volsy (US 3,853,750).

13. Regarding claim 2, Saurenman in (Fig. 1), discloses the neutralization apparatus according to claim 1, except for a metal conductive plate which is made of metal and which is not grounded, wherein the neutralization apparatus main body is made of insulative resin material, and the metal conductive plate covers outside of the neutralization apparatus main body.

However, Volsy in (Fig. 1), discloses an ionizer device comprising a metal conductive plate (6) which is made out of metal (col. 3, ll. 21-24) and which is not grounded (i.e. the conductive plate (6) is connected to a direct current potential (8) which is not a ground potential), wherein the neutralization apparatus main body (2) is made of insulative resin material (col. 3, ll. 21-24), and the metal

conductive plate (6) covers outside of the neutralization apparatus main body (col. 3, ll. 21-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Volsy wherein the metal conductive plate (6) which is made out of metal and which is not grounded, wherein the neutralization apparatus main body is made of a insulative resin material with the neutralized apparatus of Saurenman to prevent electrostatic pressure which results from the ion charge density and produces a turbulent electric wind which, if it exists within the aerosol precipitation, disturbs the conditions of collection of electrostatic particles and therefore prevents an possibility of selection as a function of particle size.

14. Regarding claim 6, Saurenman in view of Volsy discloses all the limitations recited above in claim 5.

15. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saurenman (US 4,498,116) in view of Steinman et al. (US 4,901,194).

16. Regarding claim 3, Saurenman discloses the neutralization apparatus according to claims 1 or 2, except for ion sensors which are disposed between the plus electrodes and the minus electrodes and which are provided in the neutralization apparatus main body, and which detect an ion balance state and output detection signals, and which detect an ion balance state and output detection signals, and a central processing unit which adjusts plus voltage applied to the plus electrodes and/or minus voltage to be applied to the minus

electrodes to control the ion balance based on the detection signals from the ion sensors, wherein the central processing unit adjusts the plus voltage to be applied to the plus electrodes and/or minus voltage to be applied to the minus electrodes according to the detection signals, and adjusts the ion balance to zero balance.

However, Steinman et al. in (Fig. 1), discloses one or more ion sensors (16) which are disposed between a plurality of ion emitter units (13) comprising a plus electrode (see Fig. 2, (26, 29) and a minus electrode (see Fig. 2, (24, 28) and which are provided in the neutralization main body (11, 12), and which detect an ion balance state and output detection signals (col. 4, ll. 49-56 and col. 6, ll. 46-55), and an analog central processing unit (see Figs. 2-3, (14)) which adjusts plus voltage (see Figs. 2-3, (29)) applied to the plus electrodes (see Figs. 2-3, (26, 29)) and/or minus voltage (see Figs. 2-3 (28)) to be applied to the minus electrodes (see Figs. 2-3, (24, 28)) to control the ion balance based on the detection signals from the ion sensors (16), wherein the central processing unit (see Figs. 2-3, (14)) adjusts the plus voltage (see Figs. 2-3, (29)) to be applied to the plus electrodes (see Figs. 2-3, (26, 29)) and/or minus voltage(see Figs. 2-3 (28)) to be applied to the minus electrodes (see Figs. 2-3, (24, 28)) according to the detection signals (16), and adjusts the ion balance to zero balance (col. 3, ll. 22-32 and col. 7, ll. 9-14 and ll. 64 thru col. 8, ll. 1-7 and ll. 21-51). Further, Steinman et al. analog central processing unit is able to achieve any desired ion balance which may include a zero balance concentrations of ions (col. 2, ll. 8-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the ion sensors and the analog central processing unit as taught by Steinman et al. in the neutralized apparatus of Saurenman to accurately control the ion content in the air at a particular region and to increase the effective range of the ionizing apparatus in order to suppress static electrical charges.

17. Regarding claim 4, Saurenman in view of Steinman et al. discloses the neutralization apparatus according to claim 3. Steniman et al. in (Figs. 3 and 5), further discloses a setting unit (106) which is connected to the central processing unit (14), and which sets a positive mode in which more plus ions than minus ions are generated or only plus ions are generated to bring the ion balance into an unbalanced state, or sets a negative mode in which more minus ions than plus ions are generated or only minus ions are generated to bring the ion balance into an unbalanced state, instead of a normal mode in which the ion balance is adjusted to zero balance, wherein the central processing unit (14) intentionally adjusts the plus ions and minus ions into the unbalanced state according to the positive mode or the negative mode (col. 2, ll. 53-62 and col. 8, ll. 31-34 and ll. 38-41; col. 11, ll. 49-67; col. 12, ll. 25-52).

18. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saurenman (US 4,498,116) in view of Steinman et al. (US 4,901,194) and in view of The Applicant's Acknowledged Prior Art (“AAPA).

19. Regarding claims 7-8, Saurenman discloses the neutralization apparatus according to claims 5-6, except for wherein a ion sensor is of a rod-like shape, a straight shaft direction of the ion sensor is parallel to a gas injection direction, and the shaft of the ion sensor is mounted such that the extension of the discharge needle of the plus electrode and the extension of the discharge needle of the minus electrode intersect with each other through the gas flow of the gas injection ports.

However, Steinman et al. in (Fig. 1), discloses one or more ion sensors (16) which is of a disc-like shaped (see Fig. 3, (16, 69)), wherein a straight shaft direction (i.e. the disc-like shaped ion sensor (see Fig. 1, (16)) is connected to a straight line cord of a cable) parallel to a gas injection direction (i.e. through the vertical/downward direction of the air flow (31) which inherently has gas injection ports to allow the gases to travel to the workpiece station table (32), and the straight shaft of the ion sensor (16) is mounted such that extension of the discharge needle of the plus electrode (see Figs. 1-2, (13, 26) and the extension of the discharge needle of the minus electrode (see Figs. 1-2, (13, 24) intersect with each other through the gas flow of the gas injection ports (31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the ion sensors parallel located to the gas injection ports as taught by Steinman et al. in the neutralized apparatus of Saurenman to accurately control the ion content in the air at a particular region and to increase the effective range of the ionizing apparatus in order to suppress static electrical charges.

Further, Saurenman in view of Steinman et al. discloses the one or more sensors (Steinman et al., Fig. 1 (16)) can have any other configuration and shape other than the disc-like shaped (Steinman et al., col. 9, ll. 67 thru col. 10, ll. 1-2).

However, neither of the references specifically discloses each of the ion sensors (16) are of a rod-like shape.

The AAPA in (Fig. 12, 204) discloses an ion sensor having rod-like shape used in a conventional DC bar-shaped neutralization apparatus (200). (See, AAPA, page 3, second paragraph).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the ion sensors of Saurenman and Steinman with a rod-like shaped ion sensor of the AAPA because ionizer devices take many forms such as ionizing bars, air ionization blower, air ionization nozzles which are utilized to neutralize static electrical charge by emitting positive and negative ions into the workspace or onto the surface of an area carrying undesirable static charges, therefore the rod-like shape ion sensor would be particularly useful for ionizing bars devices wherein the sensor is situated at appropriate locations where static charge suppression is most critical.

20. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saurenman (US 4,498,116) in view of Sato et al. JP (06-275366).

21. Regarding claims 9-10, Saurenman in (Figs. 1-3), discloses the neutralization apparatus according to claim 1 or 2, wherein both the plus electrode (10a) and minus electrode (20a) have the same mechanical structures. Further, Saurenman discloses the plurality of plus electrodes (10a) and minus

electrodes (20a) includes an end plus electrode and an end minus electrode disposed on the ends of the neutralized main body (12), wherein discharge needles (see Fig. 2, (10)) are inclined toward the gas injection ports (35).

Saurenman does not disclose wherein each of the plus electrode (10a) and minus electrode (20a) includes an electrode holder which is electrical insulator and which is mechanically connected to the neutralization apparatus main body, a conductive portion disposed in the electrode holder, and two discharge needles which are electrically connected to the conductive portion, and wherein the two discharge needles are inclined in a form of a delta shape.

However, Sato et al. in (Figs. 1 and 2), discloses two or more electrodes (1) which includes an electrode holder (18) which is an electrical insulator (17) and which is mechanically connected to a neutralization apparatus main body (104), a conductive portion (11, 13) disposed in the electrode holder (18), and two discharge needles (see Fig. 7, (31, 41) which are electrically connected to the conductive portion (11), and wherein the two discharge needles (see Fig. 7, (31, 41) are inclined in a form of a delta shape (see Figs. 7-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the electrode holder which is an electrical insulator as taught by Sato et al. in the neutralized apparatus of Saurenman to prevent the electrodes needles from short-circuiting the neutralized device and to perform sufficient electric discharge by preparing the electrode holder in a delta shape structure to enhance the delivery of the ion airstreams to the object to be neutralized.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERRENCE R. WILLOUGHBY whose telephone number is (571)272-2725. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836

TRW
5/21/08